

Assignment 6: Benzene & Aromatic Compound

1. Draw the structure for each of the following:

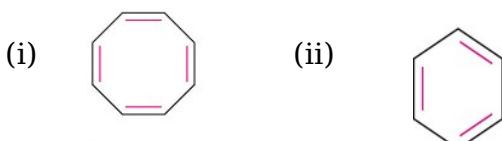
- a. *p*-bromotoulene
- b. 1-bromo-2-*neo*-pentylbenzene
- c. *m*-dinitrobenzene
- d. *tert*-butylbenzene
- e. benzyl bromide

2. Outline all steps in a reasonable mechanism for formation of isopropylbenzene from propene and benzene in liquid HF. Your mechanism must encounter for the product being isopropylbenzene, not propylbenzene.

3. Based on the effect of substituent on electrophilic aromatic substitution, predict the major product form when: (you need to show all the mechanism of the reaction, especially the resonance effect structure)

- a. toluene is sulfonated
- b. nitrobenzene is brominated
- c. phenol is subjected to Friedel-Crafts Acylation with acetyl chloride

4a. There are 2 compounds shown below, explain which one is aromatic and antiaromatic compound.



b. List out all the special characteristic of an aromatic compound.